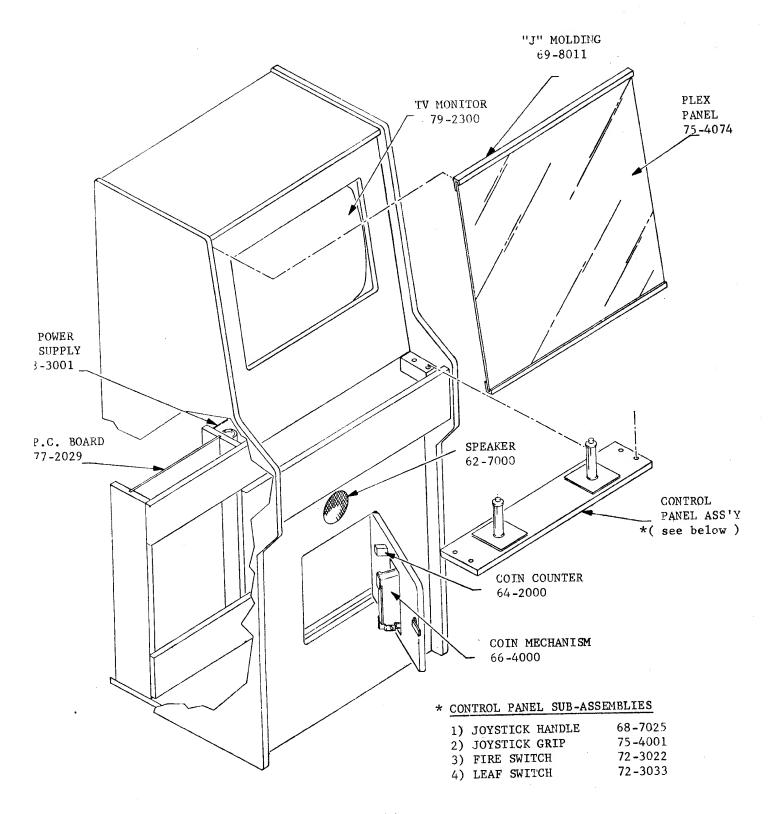
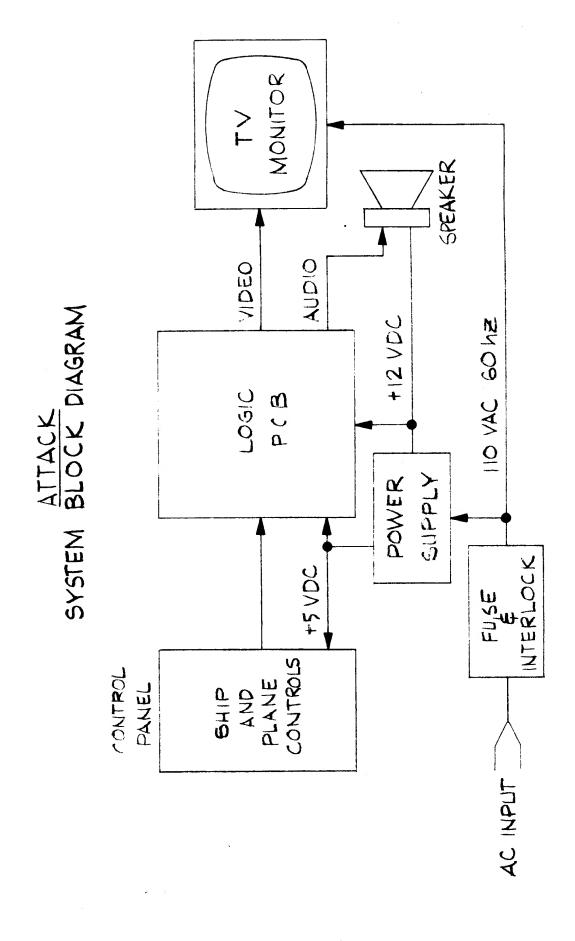
BY Exidy

SERVICE MANUAL

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I. Adjustments

A. Power Supply Adjustment

Proper operation of this game is absolutely dependent on proper adjustment of the +5vdc power supply.

Before attempting to operate or troubleshoot this game, measure and adjust, as necessary, the $+5 \, \text{vdc}$ power supply voltage.

Measure voltage with meter leads contacting +5vdc and ground traces on P.C.B., near the 6 pin connector.

The power supply voltage is set at the factory, but shocks due to shipping and handling may cause this setting to vary.

B. Volume Adjustment

Sound volume is adjustable using the pot on the P.C.B. nearest the 22 pin connector.

C. Game Time Adjustment

Game time (length of game) is adjustable using the pot on the P.C.B. nearest the 6 pin connector.

Troubleshooting Tips

Game blows fuses Bad power supply Bad P.C.B. Bad P.C.B. Repair or replace Check output of power supply for +5vdc. If not present, replace power supply. Bad P.C.B. Bad P.C.B. Repair or replace Check output of power supply for +5vdc. If not present, replace power supply. Repair or replace Check power supply harness. Wire attached to cap should have +12vdc. Replace Repair or replace Check power supply harness. Wire attached to cap should have +12vdc. Replace Sear Sear with coin Bad P.C.B. Bad P.C.B.	SYMPTOM	POSSIBLE CAUSE	SOLUTION
Bad TV Monitor Repair or replace Check output of power supply for +5vdc. If not present, replace power supply for +5vdc. If not present, replace power supply for +5vdc. If not present, replace Repair or replace Repair or replace Repair or replace Check power supply harness. Wire attached to cap should have +12vdc. Repair or replace Repair or replace Repair or replace Check microswitch and mechanism Check microswitch and mechanism. Repair or replace R		Blown fuse	Replace
Bad TV Monitor Repair or replace	Nothing happens	Interlock switch not closing	check switch alignment
Game has sound but no picture Bad TV Monitor No +5vdc Repair or replace Check output of power supply for +5vdc. If not present, replace Check power supply for +5vdc. If not present, replace Check power supply for +5vdc. If not present, replace Check power supply for +5vdc. Repair or replace Check microswitch and mechanism. All controls completely inoperative Bad P.C.B. Some controls for the place of the present p		Bad TV Monitor	Repair or replace
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high voltages and/or connector). Leave one high frequencies. end hanging loose, taking care that wire is prop-		Weather	insulated wire to pin
high frequencies. end hanging loose, taking care that wire is prop-		Nearby devices generating	20 of J2 (P.C.B. 22 pin
care that wire is prop-		high voltages and/or	
care that wire is prop-		high frequencies.	
erly insulated. If game			care that wire is prop-
			erly insulated. If game
			shuts off too easily then,
trim the wire shorter as			trim the wire shorter as
necessary.			necessary.

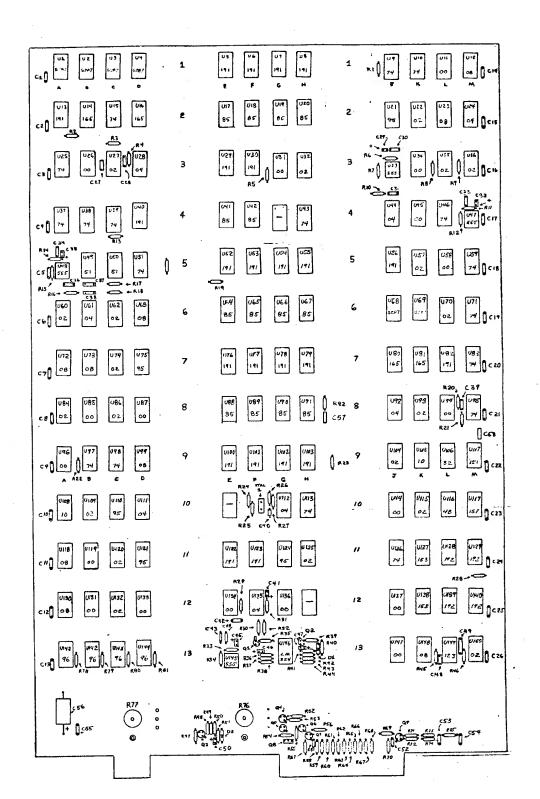
P.C. BOARD CONNECTOR PINOUT

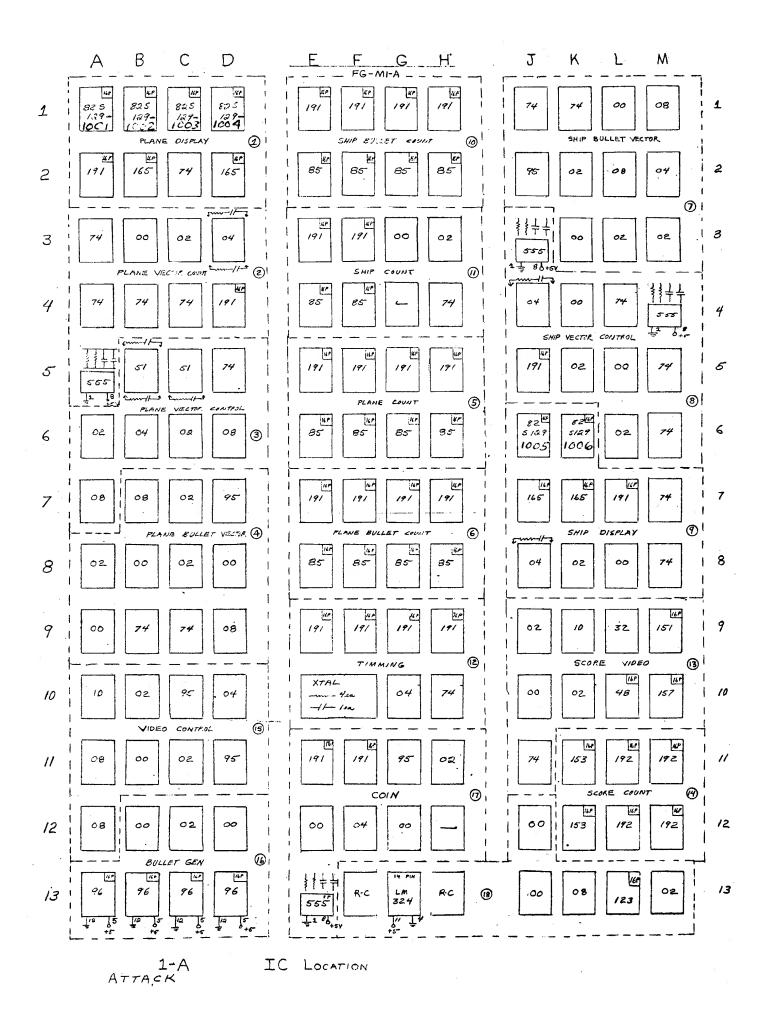
```
1. } GND
3. } +5V
4. } GND
6. } GND
```

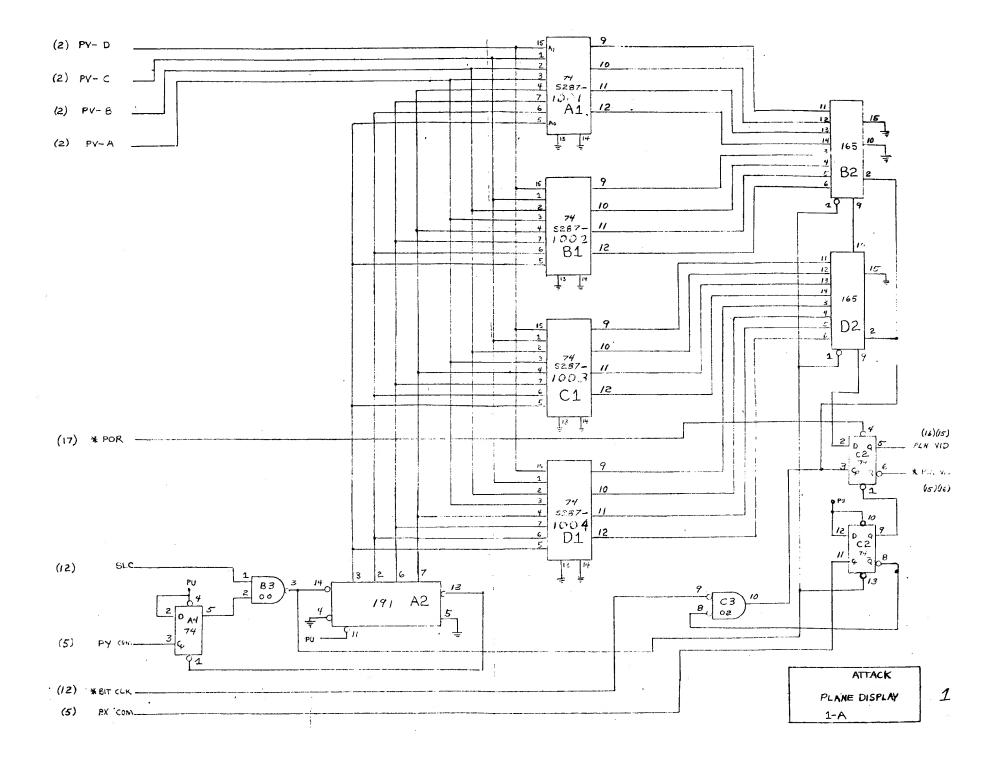
```
1. +12v (and one side of SPKR)
 2.
    SPKR (direct)
 3.
    GND
 4.
5.
 6.
    *SML....(ship move left)
7.
    *SMR.....(ship move right)
8.
9.
    *SHP GR.....(ship gun right)
    *SHP GL.....(ship gun left)
10.
    *SBF NO.....(ship button fire)
11.
     SBF NC.....(ship button fire)
12.
13.
    *PBF
         NO.....(plane button fire)
         NC.....(plane button fire)
14.
    *PBF
         SPD FST...(plane speed fast)
15.
    *PLN
    *PLN
         RCCW.....(plane rotate counter-clockwise)
16.
17.
    *PLN RCW.....(plane rotate clockwise)
     COIN.....(coin drop)
18.
19.
     GND
20.
     ANT.....(anti-static antenna)
21.
     VIDEO RETURN
22.
     TV VIDEO
```

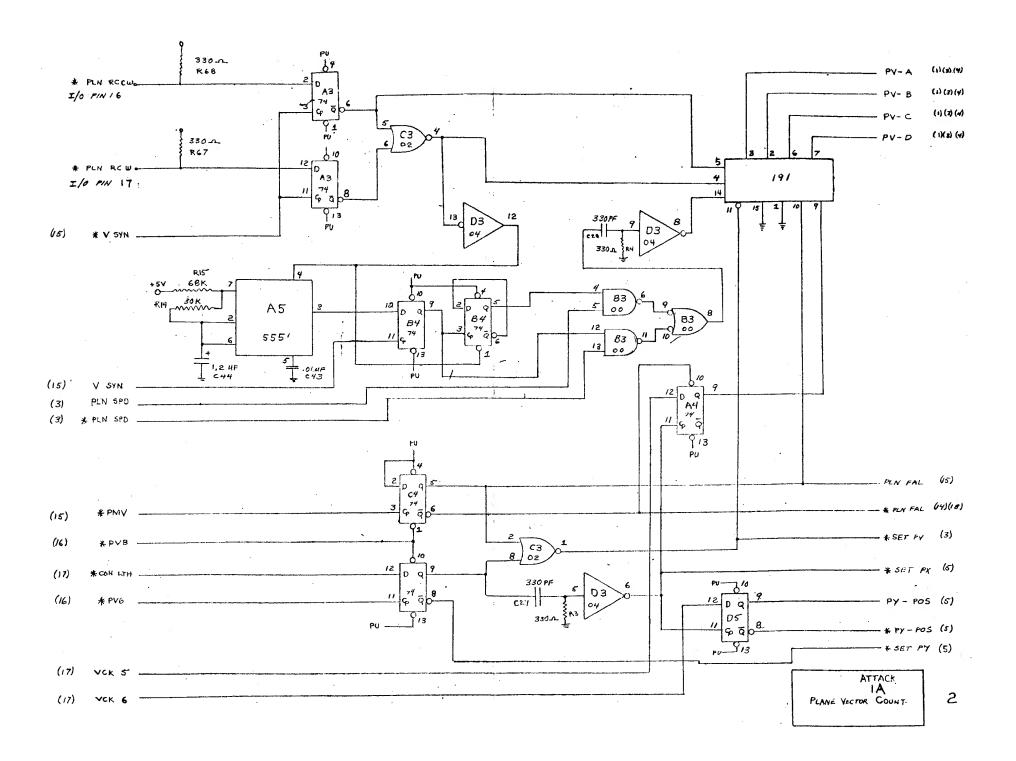
BY Exidy

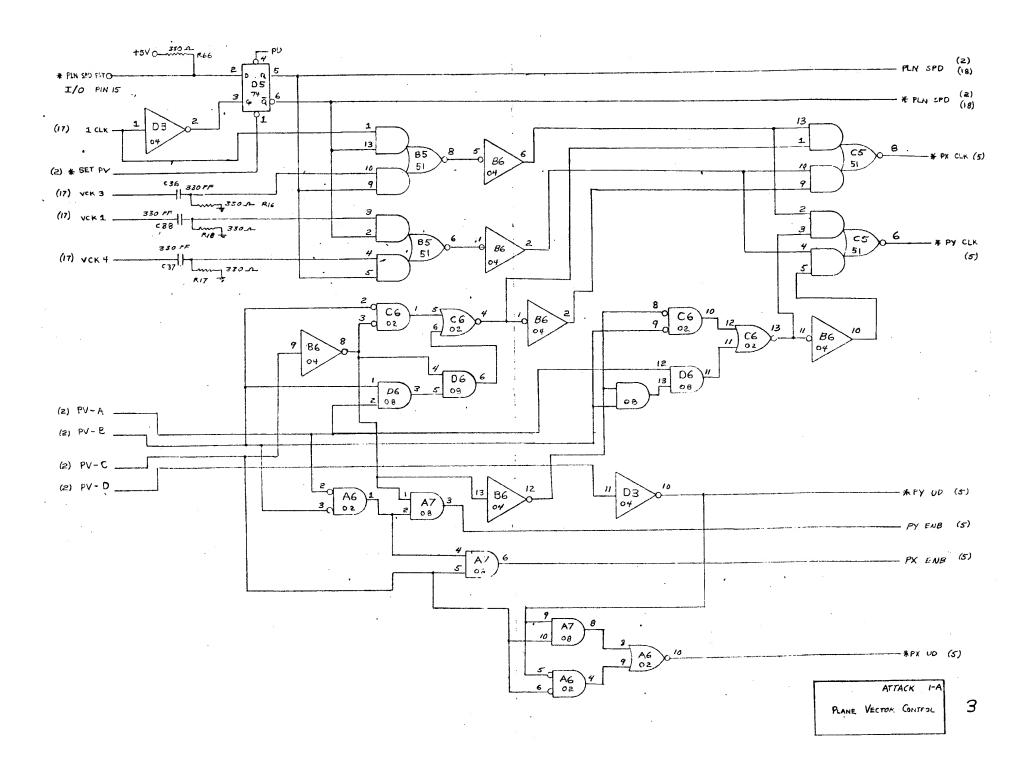
LOGIC DIAGRAM 1A

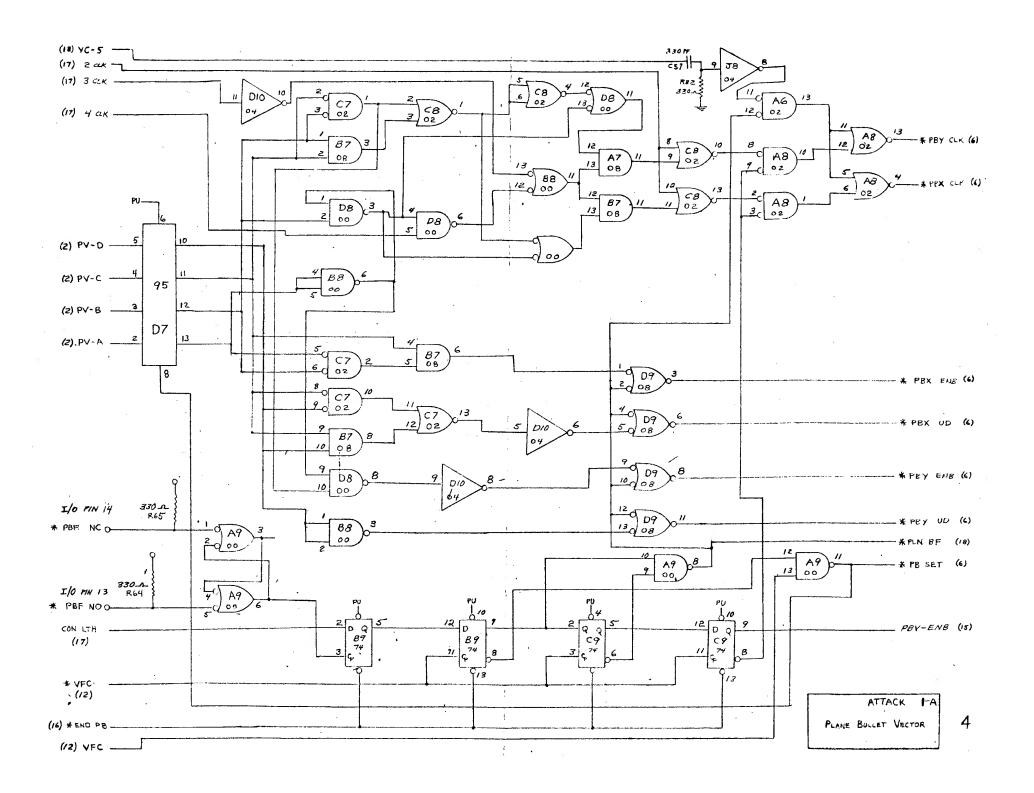


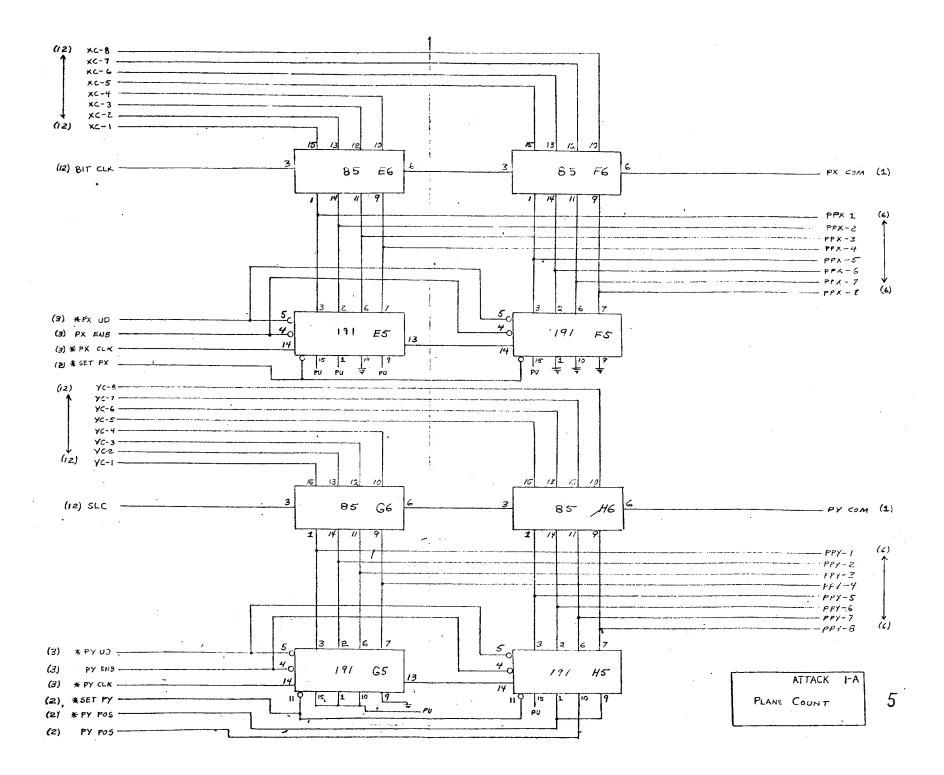


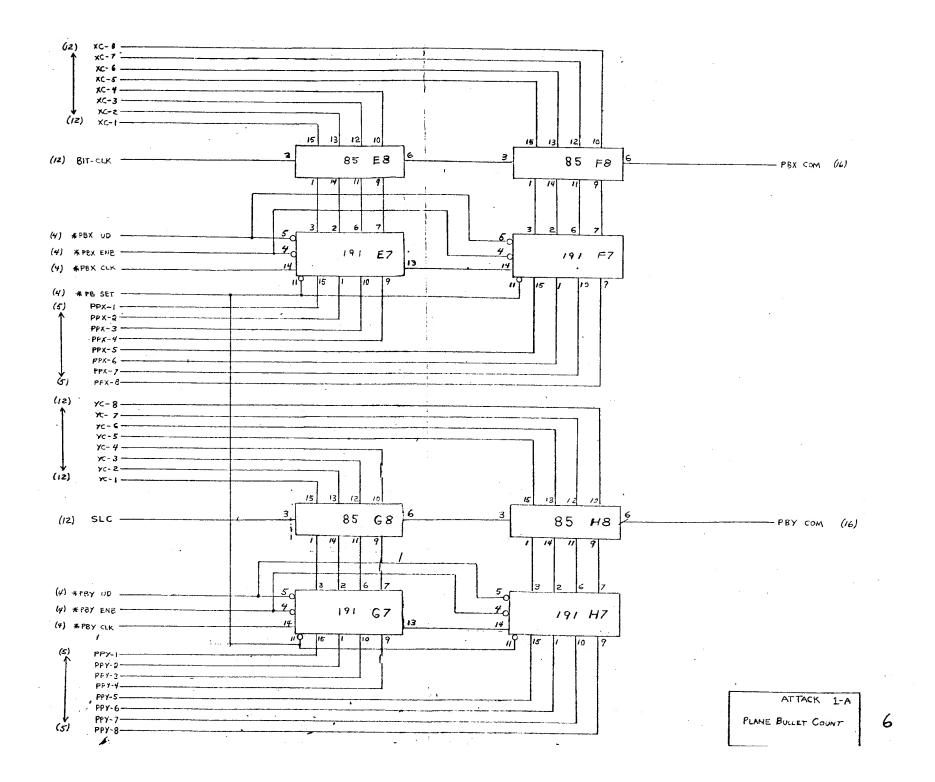


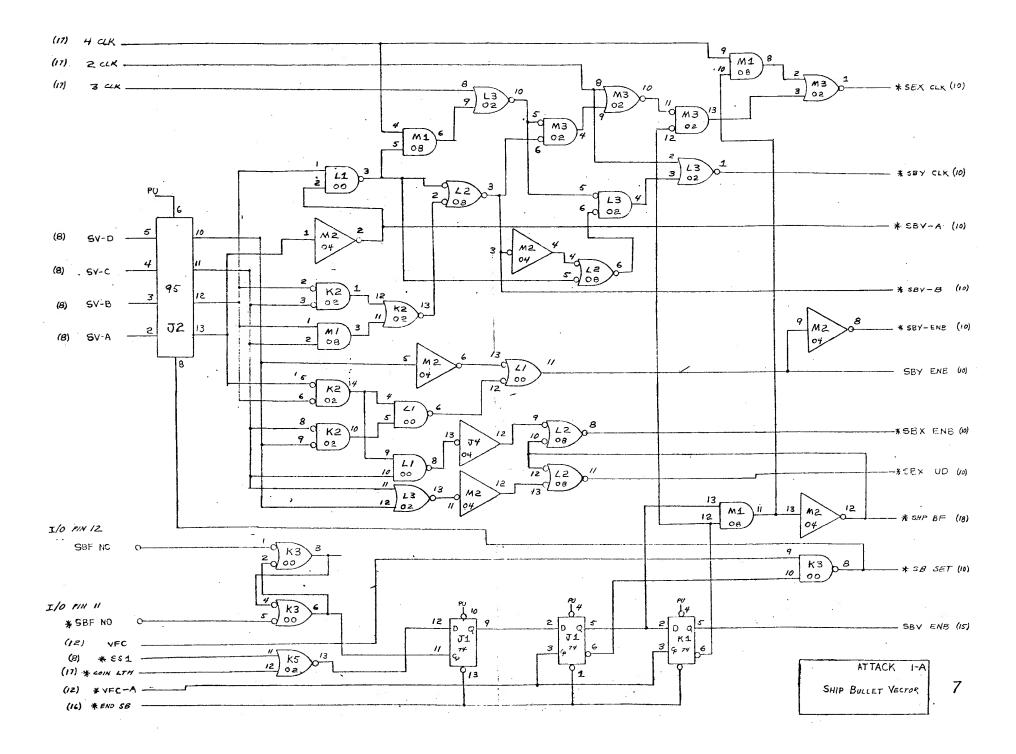


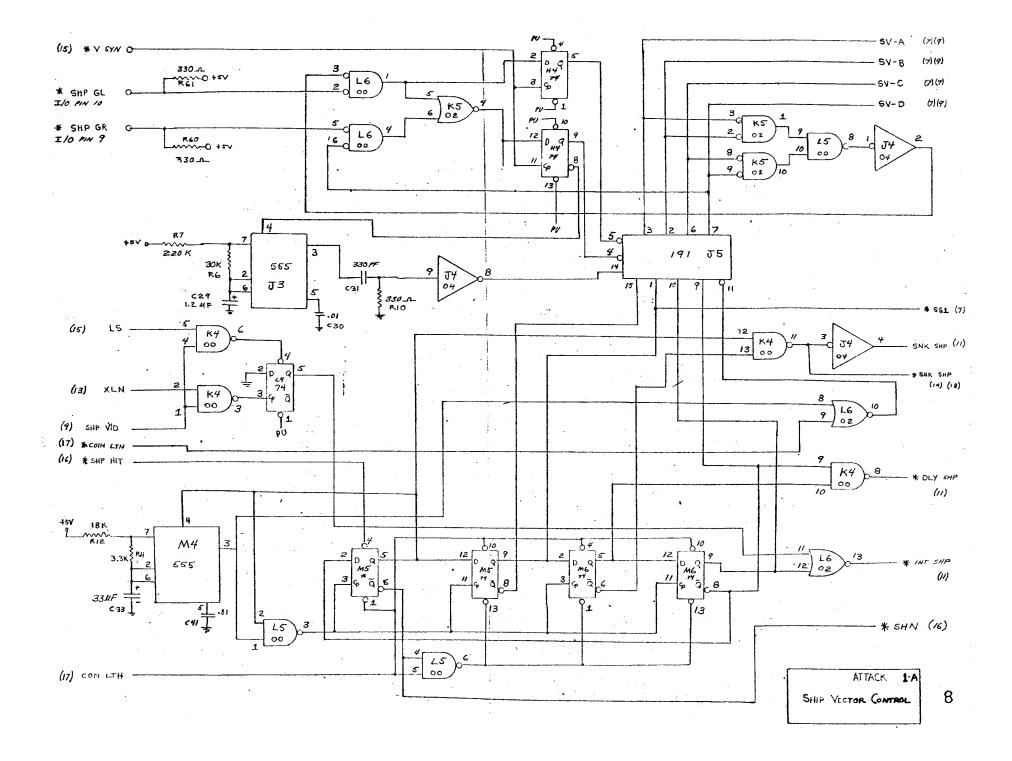


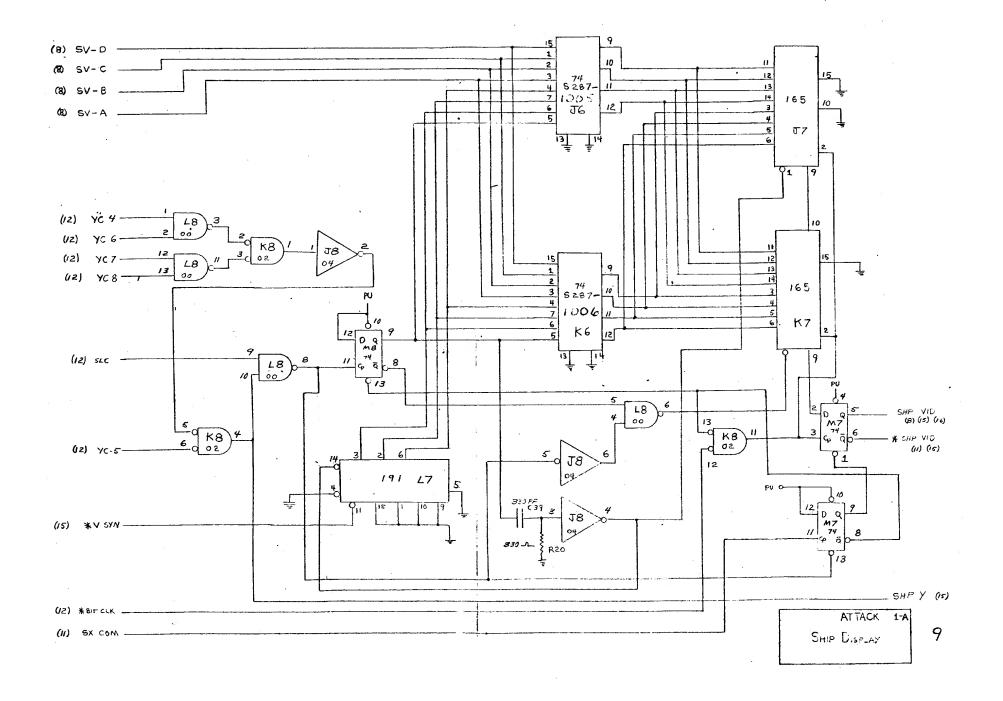


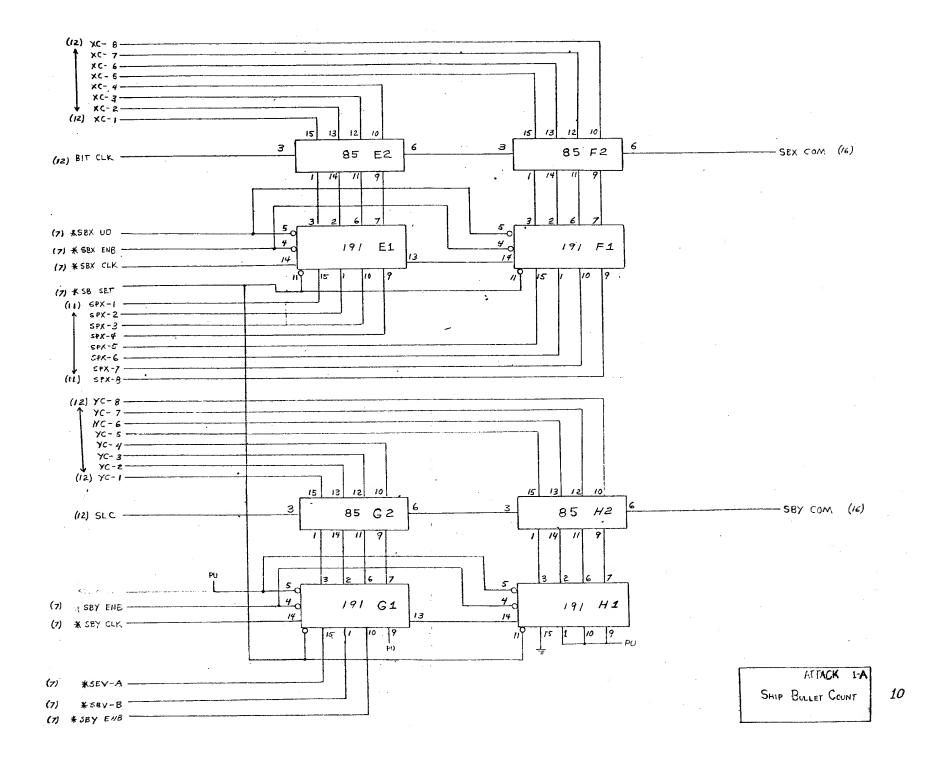


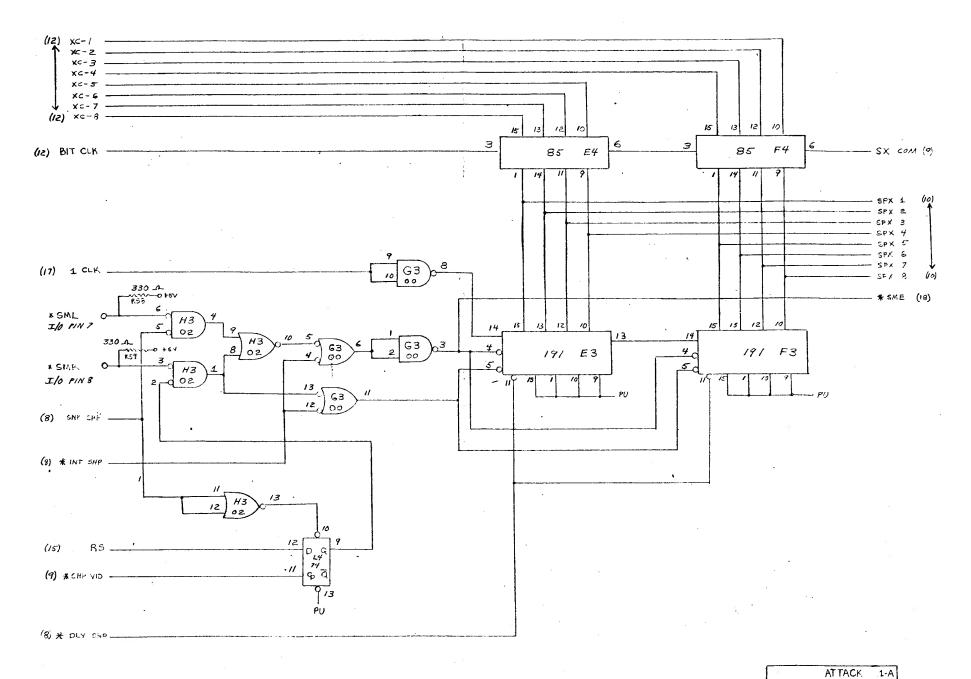






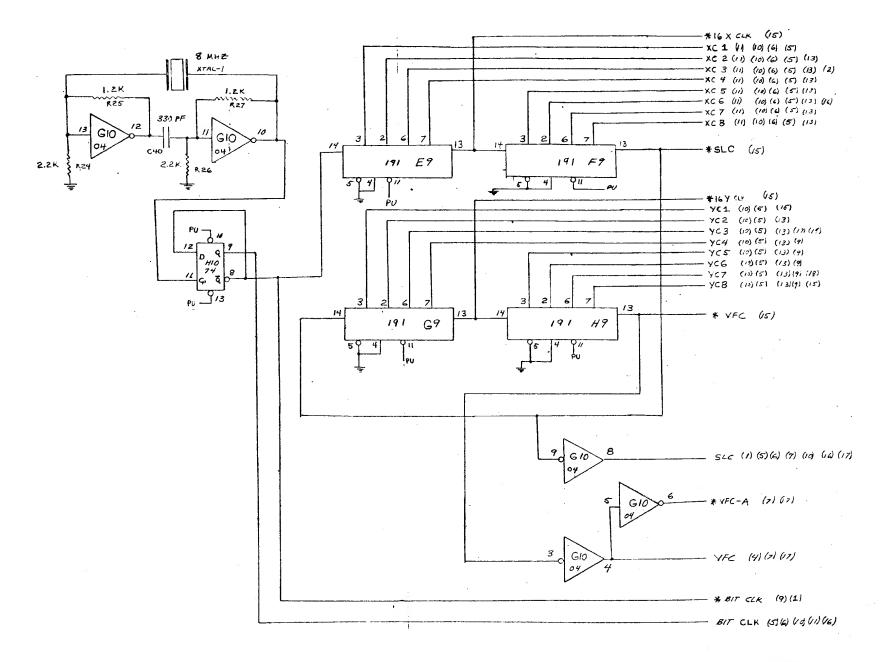






SHIP X COUNT

11



ATTACK 1-A

